

RECEIVED

AUG 02 2000

TECH CENTER 1600/2900

1644

#17

RAW SEQUENCE LISTING  
 PATENT APPLICATION: US/09/121,017B

DATE: 07/14/2000  
 TIME: 10:22:52

ENTERED

Input Set : A:\revised sequence listing.txt  
 Output Set: N:\CRF3\07142000\I121017B.raw

5 <110> APPLICANT: Imamura, Toru  
 7 Asada, Masahiro  
 9 Oka, Syuichi  
 11 Suzuki, Masashi  
 13 Yoneda, Atsuko  
 15 Ota, Keiko  
 17 Oda, Yuko  
 19 Miyakawa, Kazuko  
 21 Orikasa, Noriko  
 23 Asada, Chie  
 25 Kojima, Tetsuhito  
 29 <120> TITLE OF INVENTION: HEPARIN-BINDING PROTEINS MODIFIED WITH SUGAR CHAINS,  
 31 METHOD OF PRODUCING THE SAME AND PHARMACEUTICAL  
 33 COMPOSITIONS CONTAINING THE SAME  
 37 <130> FILE REFERENCE: 382.1019  
 41 <140> CURRENT APPLICATION NUMBER: 09/121,017B  
 43 <141> CURRENT FILING DATE: 1998-07-22  
 47 <150> PRIOR APPLICATION NUMBER: 307721/1997  
 49 <151> PRIOR FILING DATE: 1997-11-10  
 53 <160> NUMBER OF SEQ ID NOS: 31  
 57 <170> SOFTWARE: PatentIn Ver. 2.0  
 61 <210> SEQ ID NO: 1  
 63 <211> LENGTH: 221  
 65 <212> TYPE: PRT  
 67 <213> ORGANISM: Artificial Sequence  
 71 <220> FEATURE:  
 73 <223> OTHER INFORMATION: Description of Artificial Sequence: fusion of  
 75 sequence for a part of human rydocan and a part of human fibroblast  
 77 growth factor 1  
 81 <400> SEQUENCE: 1  
 83 Met Ala Pro Ala Arg Leu Phe Ala Leu Leu Leu Phe Phe Val Gly Gly  
 85 1 5 10 15  
 89 Val Ala Glu Ser Ile Arg Glu Thr Glu Val Ile Asp Pro Gln Asp Leu  
 91 20 25 30  
 95 Leu Glu Gly Arg Tyr Phe Ser Gly Ala Leu Pro Asp Asp Glu Asp Val  
 97 35 40 45  
 101 Val Gly Pro Gly Gln Glu Ser Asp Asp Phe Glu Leu Ser Gly Ser Gly  
 103 50 55 60  
 107 Asp Leu Asp Asp Leu Glu Asp Ser Met Ile Gly Pro Glu Val Val His  
 109 65 70 75 80  
 113 Pro Leu Val Pro Leu Asp Ala Asn Tyr Lys Lys Pro Lys Leu Leu Tyr  
 115 85 90 95  
 119 Cys Ser Asn Gly Gly His Phe Leu Arg Ile Leu Pro Asp Gly Thr Val  
 121 100 105 110  
 125 Asp Gly Thr Arg Asp Arg Ser Asp Gln His Ile Gln Leu Gln Leu Ser  
 127 115 120 125  
 131 Ala Glu Ser Val Gly Glu Val Tyr Ile Lys Ser Thr Glu Thr Gly Gln

RECEIVED

JUN 02 2000

TECH CENTER 500/300

RAW SEQUENCE LISTING                      DATE: 07/14/2000  
 PATENT APPLICATION:    US/09/121,017B              TIME: 10:22:52

Input Set : A:\revised sequence listing.txt  
 Output Set: N:\CRF3\07142000\I121017B.raw

```

133      130      135      140
137 Tyr Leu Ala Met Asp Thr Asp Gly Leu Leu Tyr Gly Ser Gln Thr Pro
139 145      150      155      160
143 Asn Glu Glu Cys Leu Phe Leu Glu Arg Leu Glu Asn His Tyr Asn
145      165      170      175
149 Thr Tyr Ile Ser Lys Lys His Ala Glu Lys Asn Trp Phe Val Gly Leu
151      180      185      190
155 Lys Lys Asn Gly Ser Cys Lys Arg Gly Pro Arg Thr His Tyr Gly Gln
157      195      200      205
161 Lys Ala Ile Leu Phe Leu Pro Leu Pro Val Ser Ser Asp
163      210      215      220
169 <210> SEQ ID NO: 2
171 <211> LENGTH: 663
173 <212> TYPE: DNA
175 <213> ORGANISM: Artificial Sequence
179 <220> FEATURE:
181 <223> OTHER INFORMATION: Description of Artificial Sequence: fusion of
183     sequence for a part of human rydocan and a part of human fibroblast
185     growth factor 1
189 <220> FEATURE:
191 <221> NAME/KEY: CDS
193 <222> LOCATION: (1)..(663)
197 <400> SEQUENCE: 2
199 atg gcc ccc gcc cgt ctg ttc gcg ctg ctg ctg ttc ttc gta ggc gga 48
201 Met Ala Pro Ala Arg Leu Phe Ala Leu Leu Leu Phe Phe Val Gly Gly
203 1      5      10      15
207 gtc gcc gag tgc atc cga gag act gag gtc atc gac ccc cag gac ctc 96
209 Val Ala Glu Ser Ile Arg Glu Thr Glu Val Ile Asp Pro Gln Asp Leu
211      20      25      30
215 cta gaa ggc cga tac ttc tcc gga gcc cta cca gac gat gag gat gta 144
217 Leu Glu Gly Arg Tyr Phe Ser Gly Ala Leu Pro Asp Asp Glu Asp Val
219      35      40      45
223 gtg ggg ccc ggg cag gaa tct gat gac ttt gag ctg tct ggc tct gga 192
225 Val Gly Pro Gly Gln Glu Ser Asp Asp Phe Glu Leu Ser Gly Ser Gly
227      50      55      60
231 gat ctg gat gac ttg gaa gac tcc atg atc ggc cct gaa gtt gtc cat 240
233 Asp Leu Asp Asp Leu Glu Asp Ser Met Ile Gly Pro Glu Val Val His
235 65      70      75      80
239 ccc ttg gtg cct cta gat gct aat tac aag aag ccc aaa ctc ctc tac 288
241 Pro Leu Val Pro Leu Asp Ala Asn Tyr Lys Lys Pro Lys Leu Leu Tyr
243      85      90      95
247 tgt agc aac ggg ggc cac ttc ctg agg atc ctt ccg gat ggc aca gtg 336
249 Cys Ser Asn Gly Gly His Phe Leu Arg Ile Leu Pro Asp Gly Thr Val
251      100      105      110
255 gat ggg aca agg gac agg agc gac cag cac att cag ctg cag ctc agt 384
257 Asp Gly Thr Arg Asp Arg Ser Asp Gln His Ile Gln Leu Gln Leu Ser
259      115      120      125
263 gcg gaa agc gtg ggg gag gtg tat ata aag agt acc gag act ggc cag 432
265 Ala Glu Ser Val Gly Glu Val Tyr Ile Lys Ser Thr Glu Thr Gly Gln

```

RECEIVED

AUG 02 2000

TECH CENTER 1F

RAW SEQUENCE LISTING      DATE: 07/14/2000  
 PATENT APPLICATION: US/09/121,017B      TIME: 10:22:52

Input Set : A:\revised sequence listing.txt  
 Output Set: N:\CRF3\07142000\I121017B.raw

```

267      130      135      140
271 tac ttg gcc atg gac acc gac ggg ctt tta tac ggc tca cag aca cca 480
273 Tyr Leu Ala Met Asp Thr Asp Gly Leu Leu Tyr Gly Ser Gln Thr Pro
275 145      150      155      160
279 aat gag gaa tgt ttg ttc ctg gaa agg ctg gag gag aac cat tac aac 528
281 Asn Glu Glu Cys Leu Phe Leu Glu Arg Leu Glu Glu Asn His Tyr Asn
283      165      170      175
287 acc tat ata tcc aag aag cat gca gag aag aat tgg ttt gtt ggc ctc 576
289 Thr Tyr Ile Ser Lys Lys His Ala Glu Lys Asn Trp Phe Val Gly Leu
291      180      185      190
295 aag aag aat ggg agc tgc aaa cgc ggt cct cgg act cac tat ggc cag 624
297 Lys Lys Asn Gly Ser Cys Lys Arg Gly Pro Arg Thr His Tyr Gly Gln
299      195      200      205
303 aaa gca atc ttg ttt ctc ccc ctg cca gtc tct tct gat 663
305 Lys Ala Ile Leu Phe Leu Pro Leu Pro Val Ser Ser Asp
307      210      215      220
313 <210> SEQ ID NO: 3
315 <211> LENGTH: 175
317 <212> TYPE: PRT
319 <213> ORGANISM: Artificial Sequence
323 <220> FEATURE:
325 <223> OTHER INFORMATION: Description of Artificial Sequence: fusion of
327     sequence for a part of mouse fibroblast growth factor 6 and
329     a part of human fibroblast growth factor 1
333 <400> SEQUENCE: 3
335 Met Ser Arg Gly Ala Gly Arg Val Gln Gly Thr Leu Gln Ala Leu Val
337 1      5      10      15
341 Phe Leu Gly Val Leu Val Gly Met Val Val Pro Ser Pro Ala Gly Ala
343      20      25      30
347 Arg Ala Asn Gly Thr Leu Leu Asp Ala Asn Tyr Lys Lys Pro Lys Leu
349      35      40      45
353 Leu Tyr Cys Ser Asn Gly Gly His Phe Leu Arg Ile Leu Pro Asp Gly
355      50      55      60
359 Thr Val Asp Gly Thr Arg Asp Arg Ser Asp Gln His Ile Gln Leu Gln
361      65      70      75      80
365 Leu Ser Ala Glu Ser Val Gly Glu Val Tyr Ile Lys Ser Thr Glu Thr
367      85      90      95
371 Gly Gln Tyr Leu Ala Met Asp Thr Asp Gly Leu Leu Tyr Gly Ser Gln
373      100     105     110
377 Thr Pro Asn Glu Glu Cys Leu Phe Leu Glu Arg Leu Glu Glu Asn His
379      115     120     125
383 Tyr Asn Thr Tyr Ile Ser Lys Lys His Ala Glu Lys Asn Trp Phe Val
385      130     135     140
389 Gly Leu Lys Lys Asn Gly Ser Cys Lys Arg Gly Pro Arg Thr His Tyr
391 145     150     155     160
395 Gly Gln Lys Ala Ile Leu Phe Leu Pro Leu Pro Val Ser Ser Asp
397      165     170     175
401 <210> SEQ ID NO: 4
403 <211> LENGTH: 525

```

RAW SEQUENCE LISTING                      DATE: 07/14/2000  
 PATENT APPLICATION: US/09/121,017B        TIME: 10:22:52

Input Set : A:\revised sequence listing.txt  
 Output Set: N:\CRF3\07142000\I121017B.raw

```

405 <212> TYPE: DNA
407 <213> ORGANISM: Artificial Sequence
411 <220> FEATURE:
413 <223> OTHER INFORMATION: Description of Artificial Sequence: fusion of
415     sequence for a part of mouse fibroblast growth factor 6 and
417     a part of human fibroblast growth factor 1
421 <220> FEATURE:
423 <221> NAME/KEY: CDS
425 <222> LOCATION: (1)..(525)
429 <400> SEQUENCE: 4
431 atg tcc cgg gga gca gga cgt gtt cag ggc acg ctg cag gct ctc gtc   48
433 Met Ser Arg Gly Ala Gly Arg Val Gln Gly Thr Leu Gln Ala Leu Val
435 1      5      10      15
439 ttc tta ggc gtc cta gtg ggc atg gtg gtg ccc tca cct gcc ggc gcc   96
441 Phe Leu Gly Val Leu Val Gly Met Val Val Pro Ser Pro Ala Gly Ala
443      20      25      30
447 cgc gcc aac ggc acg cta ctg gac gct aat tac aag aag ccc aaa ctc   144
449 Arg Ala Asn Gly Thr Leu Leu Asp Ala Asn Tyr Lys Lys Pro Lys Leu
451      35      40      45
455 ctc tac tgt agc aac ggg ggc cac ttc ctg agg atc ctt ccg gat ggc   192
457 Leu Tyr Cys Ser Asn Gly Gly His Phe Leu Arg Ile Leu Pro Asp Gly
459      50      55      60
463 aca gtg gat ggg aca agg gac agg agc gac cag cac att cag ctg cag   240
465 Thr Val Asp Gly Thr Arg Asp Arg Ser Asp Gln His Ile Gln Leu Gln
467      65      70      75      80
471 ctc agt gcg gaa agc gtg ggg gag gtg tat ata aag agt acc gag act   288
473 Leu Ser Ala Glu Ser Val Gly Glu Val Tyr Ile Lys Ser Thr Glu Thr
475      85      90      95
479 ggc cag tac ttg gcc atg gac acc gac ggg ctt tta tac ggc tca cag   336
481 Gly Gln Tyr Leu Ala Met Asp Thr Asp Gly Leu Leu Tyr Gly Ser Gln
483      100     105     110
487 aca cca aat gag gaa tgt ttg ttc ctg gaa agg ctg gag gag aac cat   384
489 Thr Pro Asn Glu Glu Cys Leu Phe Leu Glu Arg Leu Glu Glu Asn His
491      115     120     125
495 tac aac acc tat ata tcc aag aag cat gca gag aag aat tgg ttt gtt   432
497 Tyr Asn Thr Tyr Ile Ser Lys Lys His Ala Glu Lys Asn Trp Phe Val
499      130     135     140
503 ggc ctc aag aag aat ggg agc tgc aaa cgc ggt cct cgg act cac tat   480
505 Gly Leu Lys Lys Asn Gly Ser Cys Lys Arg Gly Pro Arg Thr His Tyr
507      145     150     155     160
511 ggc cag aaa gca atc ttg ttt ctc ccc ctg cca gtc tct tct gat   525
513 Gly Gln Lys Ala Ile Leu Phe Leu Pro Leu Pro Val Ser Ser Asp
515      165     170     175
523 <210> SEQ ID NO: 5
525 <211> LENGTH: 181
527 <212> TYPE: PRT
529 <213> ORGANISM: Artificial Sequence
533 <220> FEATURE:
535 <223> OTHER INFORMATION: Description of Artificial Sequence: fusion of

```

RAW SEQUENCE LISTING                      DATE: 07/14/2000  
 PATENT APPLICATION:    US/09/121,017B        TIME: 10:22:52

Input Set : A:\revised sequence listing.txt  
 Output Set: N:\CRF3\07142000\I121017B.raw

```

537     sequence for a part of mouse fibroblast growth factor 6,
539     a part of human fibroblast growth factor 1 and an artificial
541     sequence
545 <400> SEQUENCE: 5
547 Met Ser Arg Gly Ala Gly Arg Val Gln Gly Thr Leu Gln Ala Leu Val
549   1           5           10           15
553 Phe Leu Gly Val Leu Val Gly Met Val Val Pro Ser Pro Ala Gly Ala
555           20           25           30
559 Arg Ala Gln Gly Thr Leu Leu Asp Ala Asn Tyr Lys Lys Pro Lys Leu
561   35           40           45
565 Leu Tyr Cys Ser Asn Gly Gly His Phe Leu Arg Ile Leu Pro Asp Gly
567   50           55           60
571 Thr Val Asp Gly Thr Arg Asp Arg Ser Asp Gln His Ile Gln Leu Gln
573   65           70           75           80
577 Leu Ser Ala Glu Ser Val Gly Glu Val Tyr Ile Lys Ser Thr Glu Thr
579           85           90           95
583 Gly Gln Tyr Leu Ala Met Asp Thr Asp Gly Leu Leu Tyr Gly Ser Gln
585   100          105          110
589 Thr Pro Asn Glu Glu Cys Leu Phe Leu Glu Arg Leu Glu Ala Ala
591   115          120          125
595 Thr Pro Ala Pro Asn His Tyr Asn Thr Tyr Ile Ser Lys Lys His Ala
597   130          135          140
601 Glu Lys Asn Trp Phe Val Gly Leu Lys Lys Asn Gly Ser Cys Lys Arg
603   145          150          155          160
607 Gly Pro Arg Thr His Tyr Gly Gln Lys Ala Ile Leu Phe Leu Pro Leu
609           165          170          175
613 Pro Val Ser Ser Asp
615           180
621 <210> SEQ ID NO: 6
623 <211> LENGTH: 543
625 <212> TYPE: DNA
627 <213> ORGANISM: Artificial Sequence
631 <220> FEATURE:
633 <223> OTHER INFORMATION: Description of Artificial Sequence: fusion of
635     sequence for a part of mouse fibroblast growth factor 6,
637     a part of human fibroblast growth factor 1 and an artificial
639     sequence
643 <220> FEATURE:
645 <221> NAME/KEY: CDS
647 <222> LOCATION: (1)..(543)
651 <400> SEQUENCE: 6
653 atg tcc cgg gga gca gga cgt gtt cag ggc acg ctg cag gct ctc gtc   48
655 Met Ser Arg Gly Ala Gly Arg Val Gln Gly Thr Leu Gln Ala Leu Val
657   1           5           10           15
661 ttc tta ggc gtc cta gtg ggc atg gtg gtg ccc tca cct gcc ggc gcc   96
663 Phe Leu Gly Val Leu Val Gly Met Val Val Pro Ser Pro Ala Gly Ala
665           20           25           30
669 cgc gcc caa ggc acg cta ctg gac gct aat tac aag aag ccc aaa ctc   144
671 Arg Ala Gln Gly Thr Leu Leu Asp Ala Asn Tyr Lys Lys Pro Lys Leu

```

VERIFICATION SUMMARY

DATE: 07/14/2000

PATENT APPLICATION: US/09/121,017B

TIME: 10:22:53

Input Set : A:\revised sequence listing.txt

Output Set: N:\CRF3\07142000\I121017B.raw

L:1763 M:258 W: Mandatory Feature missing, <220> FEATURE: